WE CLAIM:

1. A spinal stabilization device comprising:

a cage having a distal end adapted for insertion into a spinal disc passageway formed in a spinal disc and an open proximal end adapted to receive the shaft of an insertion device; and

anchors on the exterior of the cage for stabilizing the cage in the spinal disc passageway.

2. The device in accordance with claim 1 wherein the cage is made of a helical metal coil having exterior edges beveled into a sharp point and comprising the anchors, the coil further including internal threads formed adjacent the proximal and distal ends thereof and adapted to receive an end plate and a nose piece respectively, the nose piece being closed for extension into the passageway formed in the spinal disc and the end plate being open to receive the shaft of the insertion device.

3. The device in accordance with claim 1 wherein the cage is made of a hollow metal cylinder having helical threads extending around an outer surface thereof and comprising the anchors, the cylinder further defining a plurality of columns of openings formed therein and extending around the circumference thereof between each of the helical threads, the cylinder further including internal threads formed in proximal and distal ends thereof for threadingly securing an end plate and a nose piece thereto respectively, the nose piece being closed for extension into the passageway formed in the spinal disc and the end plate being open to receive the shaft of the insertion device.

4. The device in accordance with claim 1 wherein the cage is made of a hollow metal cone having helical threads extending around an outer surface thereof and comprising the anchors, the cylinder further defining a plurality of columns of openings formed therein and extending around the circumference thereof between each of the helical threads, the cylinder further including internal threads formed in proximal and distal ends thereof for threadingly securing thereto an end plate and a nose piece respectively, the nose piece being closed for extension into the passageway formed in the spinal disc and the end plate being open to receive the shaft of the insertion device.

5. The device in accordance with claim 1 wherein the cage is a hollow sphere having a plurality of longitudinally extending ridges thereon comprising the anchors and a plurality of rows of generally oval shaped openings defined on the exterior surface of the sphere, the sphere further including internal threads formed in the proximal and distal ends thereof for threadingly receiving an end plate and a nose piece respectively, the nose piece being closed for extension into the passageway formed in the spinal disc and the end plate being open to receive the shaft of the insertion device.

6. The device in accordance with claim 1 wherein the cage is defined by a plurality of longitudinally oriented elongate slats extending between a nose piece and an end plate respectively, the end plate defining a bore and the nose piece defining an interior recess, the cage further including a screw extending through the bore in the end plate and the recess in the nose piece and being operably associated therewith such that when the screw is rotated in response to the rotation of the insertion or screwing device the end plate is moved in the direction of the nose piece and the slats flex outwardly, each of the slats having a plurality of spikes formed thereon and comprising the anchors.

7. The device in accordance with claim 1 wherein the cage is defined by a plurality of longitudinal, elongate slats extending between a nose piece and an end plate, the nose piece including a closed, rounded distal end and the end plate including an open proximal end adapted to receive the shaft of the insertion or screwing device, the slats being made of a shape memory alloy and adapted to flex outwardly in response to a change in temperature.

8. The device in accordance with claim 1 further comprising inner slats extending between the end plate and a proximal end of the nose piece and made of a shape memory alloy adapted to contract in response to a change in temperature.

9. The device in accordance with claim 3 wherein the hollow metal cylinder is made from a rolled sheet of flat metal.

10. The device in accordance with claim 1 wherein the cage is defined by a body having a bore defining an opening in the open proximal end thereof and a key hole adapted to receive the shaft of the insertion or screwing device.

11. The device in accordance with claim 10 wherein the distal end of the cage is generally bullet-shaped.

12. The device in accordance with claim 10 wherein the distal end of the cage is generally rounded.

13. The device in accordance with claim 10 wherein the body of the cage is generally bulbous and the distal end thereof is generally bullet-shaped.

14. The device in accordance with claim 10 wherein the cage is generally cone-shaped.

15. The device in accordance with claim 10 wherein a plurality of spikes extend outwardly from an outer surface of the body and define the anchors.

16. The device in accordance with claim 15 wherein the spikes extend from upper and lower faces of the outer surface of the body and threads extend outwardly from side faces of the outer surface of the body.

17. The device in accordance with claim 10 wherein the body is composed of an inner core made of a first material and an outer core made of a second material.

18. The device in accordance with claim 17 wherein the inner core is threaded within the outer core.

19. The device in accordance with claim 1 wherein the cage comprises a separate nose piece and end plate defining respective interior cavities and bands composed of shape memory alloy extending between the nose piece and the end plate.

20. The device in accordance with claim 1 wherein the bands include hooked ends extending into the cavities defined in the nose piece and the end plate respectively.

21. The device in accordance with claim 1 wherein the cage is packed with bone growth stimulating agents.

22. The device in accordance with claim 1 wherein the cage is packed with a patient's bone marrow.

23. The device in accordance with claim 22 wherein the bone marrow is mixed with a thixotropic material.

24. The device in accordance with claim 22 wherein the bone marrow is mixed with bovine or other collagen.

25. A spinal stabilization device which comprises:

an expandable cage having a closed, rounded distal end and an open proximal end;

said cage being provided with plural anchors on the external surface thereof for engagement with contiguous bone tissue when said cage is expanded.

26. The device in accordance with claim 25 wherein the cage is made of a memory metal and expands to a predetermined shape at body temperature.

27. The device in accordance with claim 25 wherein the cage is expandable mechanically.

28. The device in accordance with claim 25 wherein an end plate is attached to the proximal end of the cage.

29. A method of treating a degenerated disc comprising the steps of creating an opening in the foraminal space using either a posterolateral or anterolateral approach and implanting a spinal stabilization device through the opening in the foraminal space and into the degenerated disc.

30. The method of claim 29 wherein the step of implanting the spinal stabilization device into the degenerated disc includes the steps of using laser energy to create an opening in the annulus, using a sharp-ended tool to create a puncture in the annulus and threading the spinal stabilization device through the puncture and into place in the disc.

31. The method of claim 29 wherein the step of implanting the spinal stabilization device into the degenerated disc includes the steps of forming a tunnel in the disc and then inserting the spinal stabilization device into the tunnel.

32. The method of claim 29 wherein the spinal stabilization device has a sharp end and the step of implanting the spinal stabilization device includes the step of using the sharp end to puncture the annulus and then inserting the spinal stabilization device into the disc through the puncture.

33. The method of claim 29 further including the steps of inserting a laser needle posterolaterally to vaporize bone and inserting an endoscope to enable

viewing of the disc, vertebra and nerves prior to the step of creating an opening in the foraminal space.

34. The method of claim 29 further including the step of using a laser needle to shrink the annulus of the disc and to vaporize debris following the step of implanting the spinal stabilization device.

35. A method for stabilizing the spine of a human patient which comprises the steps of:

forming a passageway in a spinal disc;

inserting an expandable spinal stabilization device into the formed passageway; and

expanding the inserted spinal stabilization device while in the formed passageway sufficient to stabilize the spine.